

Multistage Roots vacuum pump.

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A multistage Roots-type vacuum pump comprising: a rotor defining a plurality of successive compression chambers (5) which are axially separated from one another by intermediate plates (1); a rotor assembly disposed inside the stator and constituted by two parallel shafts (8, 9) supported by bearings (11, 12) in end plates (2, 3) of the stator, each shaft (8, 9) being fitted inside each chamber (5) with a compression lobe (13, 14) such that each chamber thus contains two conjugate compression lobes; a motor (15) for driving one (8) of the two shafts in rotation, with the other shaft being driven in the opposite direction by gearing (17-18) situated in a housing (6) fixed to the corresponding end plate (2) of the stator, with each of the shafts passing through the end plate via a corresponding lip seal (19, 20); wherein a sealing module (24) is interposed between the end plate (2) situated adjacent to the housing (6) and the compression chamber adjacent to the housing, the module (24) comprising a partition around each of the shafts (8, 9) and fitted with the fixed portion (25, 26) of a corresponding labyrinth seal, with each shaft being provided with the moving complementary portion (27, 28) of the labyrinth seal, the moving portions of the labyrinth seals being situated in a common cavity (31) of the module, which cavity is connected via a non-return valve (32, 33) to the delivery channel (23) from the compression chamber adjacent to the housing, the valve allowing fluid to flow from the cavity (31) into the delivery channel.

FIG. 2

